Advance Care Planning in Community-Dwelling Adults

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Abstract

Advance care planning is a process that allows for patient autonomy at the end of life. Yet, less than 30% of Americans over the age of 65 have an advance care plan. Advance care planning has positive effects on patients, families and healthcare systems. However, both patients and healthcare providers report barriers to completing and discussing advance care planning. Many different interventions have been studied to increase advance care planning rates. Engaging patients and providers electronically before or during appointments in outpatient clinics and community settings has shown marked improvement in advance care plan discussions and documentation rates. To address this complex issue, two community-based seminars with electronic pre-engagement for adults has been proposed to improve advance care planning completion rates.

Keywords: *Advance care planning, community, electronic engagement, documentation rates*

Advance Care Planning in Community-Dwelling Adults

Quality healthcare should be provided from birth until death. Through the years there have been advancements in disease prevention and awareness, but very little has been done to promote a "good death" (Institute of Medicine [IOM], 1997). End-of-life care is a complex issue for patients, families, and healthcare providers. What patients want at the end-of-life is a personal decision. Having an advance care plan is one-way individuals can direct their wishes at the end of life.

Problem Statement

United States (US) residents are living longer. In 2030 it is projected that greater than 20% of US residents will be 65 years of age and by 2060 it is anticipated that the population 85 years of age and older will more than double (Vespa, Armstrong, & Medina, 2018). Yet, less than 30% of all adults in the United States have an advance care plan (ACP) (Rao, Anderson, Lin, & Laux, 2014).

The issue of advance care planning was addressed in 1997 when the IOM created a committee on improving care at the end-of-life (EOL) (IOM, 1997). The committee created a model of care for the EOL; that encouraged advance care planning for adults (IOM, 1997). Although there have been improvements in EOL planning since, room for continued growth remains. In 2015 when the IOM created another committee on death and end-of-life issues, the IOM found one-quarter of adults, specifically those more than 75 years old, had given little or no thought to their end of life wishes (IOM, 2015). Also of concern is that U.S. residents rarely have written documentation of EOL wishes or have discussions about the care they want at the EOL (IOM, 2015). As reported, EOL care wishes should be discussed and recorded in the health record (IOM, 2015). In 2015 the IOM made recommendations to improve the advance care

planning process, encouraged increased public engagement, and education about EOL care, and advance care planning to occur at the community level. The process of advance care planning and having a documented ACP are two ways to provide autonomy at the EOL.

Purpose and Rationale

Advance care planning is a complex issue that can affect people at the end of life. By reviewing the literature, insight can be provided on barriers to completing and properly documenting advance care plans. Problems can occur with both patients and providers such as personal comfort level discussing death and dying, communication barriers, and timely conversations regarding ACP. Advance care planning discussions and documentation should be a practice priority for all healthcare providers. When ACP are completed, patients are able to maintain autonomous decision making at the EOL. The purpose of this project was to explore barriers to advance care planning and examine completed research to increase advance care planning discussions and documentation in outpatient and community settings. This project aims were to improve advance care planning engagement and completion rates in community-dwelling adults.

Background and Significance

Population

Ultimately, advance care planning helps all adult patients prepare for end-of-life situations when an individual can no longer make medical decisions. Although there have been improvements since the 1997 IOM report on care at the end of life, there is still room for growth. It has been documented that most patients prefer to die at home (Skorstengaard et al., 2017). In the US between 2000 and 2014, there was an approximate 25% decrease in the number of people who die in hospitals, and a 29% increase in the number of people who die at home (US

Department of Health and Human Services [USHHS], 2016; Teno et al., 2018). Also of significance, the deaths that occurred in hospice care increased by over 200% during the same period although this statistic may be overestimated because hospice was not captured on death certificates until 2002 (USHHS, 2016). However, it is of concern for Medicare patients in the last 90 days of life because approximately 50% of these beneficiaries are hospitalized, 6-12% have multiple hospitalizations and of those hospitalized in the last 30 days of life approximately 28% have an intensive care unit admission (USHHS, 2016; Teno et al., 2018). These hospitalizations can increase health utilization, expenditures, and distress patients and families at the EOL.

Barriers to Advance Care Plans

Discussing and completing an ACP during a wellness visit in the outpatient setting allows providers, patients, and surrogate decision makers (SDM) the time to review goals of care before a medical emergency or the EOL. However, it has been noted that these discussions rarely occur (Barkley et al., 2019; IOM, 2015; Keary & Moorman, 2015; Rao, Anderson, Lin, & Laux, 2014). Patients and providers report barriers to these conversations. Patients report the ACPs are not completed because of the lack of understanding of importance of the document and individuals believing their family knows their EOL wishes (Rao, Anderson, Lin, & Laux, 2014). Patients also report they prefer providers to bring up the discussion about end of life (DeVleminck, Batteauw, Demeyere, & Pype 2018). It is documented that providers do not complete ACPs citing lack of training, not enough time during appointments, forgetting, and lack of forms (Dube, McCarron, & Nannini 2015; Howard et al., 2018; Tung et al., 2014). Other issues that providers noted were the inability to transfer documents within the healthcare system and patients understanding of how artificial treatments can prolong life (Howard et al., 2018). Both

patients and providers note barriers to completion of ACP that occur at a system and personal level.

Effects on Patient and Survivors

Advance care planning affects the patient, but it also positively affects families and caregivers. Detering, Hancock, Reade, & Silvester (2010) found that patients who had an ACP had higher satisfaction with their overall hospitalization, the belief they were listened to, that information was easily shared. Of interest is the finding that families benefited long-term if an ACP was completed before a patient's death. Families reported a better quality of life, enhanced quality of care, and less stress and anxiety after a terminal hospitalization when an ACP was documented (Connors et al., 1995; Detering, Hancock, Reade, & Silvester, 2010 & Garrido et al., 2015). This demonstrates that advance care plan communication can have a positive impact on patients, families and health systems.

Interventions with Improved Outcomes

Although understanding the barriers to discussing or completing ACP, it is essential to examine interventions that increase the completion of these discussions and forms. One way to improve the completion of ACP is to increase a provider's comfort level in discussing EOL goals. Chan et al. (2016) designed a four-step educational program on advance care planning and examined providers comfort level and ability to complete advance care planning. This study encompassed didactic, simulation, and actual patient encounters to complete an ACP. The authors found that this intervention increases the provider's comfort level in reviewing ACP. Educating providers about advance care planning can increase comfort level with these discussions with the hope of increased ACP completion.

Altering workflows by engaging patients and providers can increase the frequency of ACP discussions. Bose-Brill et al. (2018) engaged patients and providers by changing office workflows to increase ACP form completion. A message was sent through the clinic's electronic health record (EHR) three to five days before a scheduled appointment. This message gave information about ACP and asked the patient to respond to these questions about EOL goals. These goals were recorded in the EHR and reviewed by staff. Then an ACP discussion was added to the problem list which was evaluated by the primary care doctor during the next office visit. Ultimately those who participated in the intervention had a 27% increase of ACP documentation in the EHR over the control group (Bose-Brill et al., 2018). This intervention allowed both patient and provider to engage in the ACP discussion increasing the likelihood of completing the document.

A system change can decrease barriers to ACP documentation. One way to reduce barriers is the education of patients and providers and then creating a reminder in the EHR. Hayek et al. (2014) tried engaging select patients and providers through an educational series and pamphlets; they reported approximately one percent completion of ACP with this method. However, the same authors had a 75% completion rate of ACP when an ACP discussion reminder was placed in the EHR. This system trigger helped providers remember the need for this discussion and complete ACP documentation.

Although the process of advance care planning is complex, providers, SDM and patients need to be actively engaged. Advance care planning should be started in the outpatient or community setting and framed as a discussion that continues to happen over time. Advance care planning effects most people at the EOL yet these discussions rarely occur (Barkley et al., 2019; IOM, 2015; Keary & Moorman, 2015; Rao, Anderson, Lin, & Laux, 2014). Patients and

providers report different reasons the discussions and forms are not completed and common themes are availability of forms, not having enough training to be comfortable with discussions about the EOL, and not remembering to have a discussion during a healthcare visit (Dube, McCarron, & Nannini, 2015; Howard et al., 2018; Tung et al., 2014). Engaging providers and patients through education and pre-visit engagement shows promise to increase the number of discussions and ACP forms documented in the EHR (Bose-Brill et al., 2018; Hayek et al., 2014; Chang et al., 2016). Community-based organizations can help bridge the gap by providing the same interventions outside of the typical healthcare setting.

Internal Evidence

A non-profit foundation in Phoenix, AZ that supports women and vulnerable populations, advances their mission through research, advocacy, and philanthropy. This foundation saw the need for community-based advance care planning for adults that attend monthly educational seminars. This foundation has monthly sessions that have attendance from 15-150 people. They proposed using the monthly educational series is a way to engage adults about advance care planning in the community. This led to the PICOT question: In community-dwelling adults (P) how does pre-visit electronic engagement (I) compared to no engagement (C) affect the completion advance care plans (O) over a three-week period (T).

Search Strategy

An exhaustive database search was completed in January 2019 to April 2019 to answer the PICOT question. The following databases were searched: PubMed, Cumulative Index of Nursing and Allied Health Literature (CINHAL), PsychINFO, and Cochrane Library with the following combinations of keywords: A*dult, geriatric, end of life, Medicare, outpatient, primary care, community, documentation, electronic health record, electronic medical record, electronic*

reminder, electronic messaging, advance care plan, advance directive, living will, power of attorney, barriers, nurse, conversation, engagement, and *completion.* Limits on publications were last five years, English language, scholarly journals, peer review journal, and full text available.

The initial search of PubMed yielded 32,485 articles. Limits were placed for adults 19 years and older decreasing the number of articles to 2,746. Then a search of *Advance care plan* and *electronic medical record* with limits of less than five years old and English language yielded 43 articles.

The initial search of CINAHL used the terms *advance care plan or advance directive, primary care* or *outpatient* and *electronic health record* or *electronic medical record.* This search yielded 665 articles. Limits added were adult and that yielded 313 articles. The limit *of primary health care* was added, and the search yielded 35 articles.

The initial search of PsycINFO used the terms *advance care plan or advance directive, primary care* or *outpatient* and *electronic health record* or *electronic medical record* yielded 92 articles. Limits were then placed for qualitative, quantitative, or clinical trials yielding 82 articles.

The initial Cohrane Library search yielded five Cochrane reviews, three Cochrane protocols and 479 trials. Then a search of *Advance care plan and Electronic messaging and primary care* yielded three Cochrane reviews, one Cochrane protocol and 197 trials.

The exhaustive search of PubMed, CINAHL, PsycINFO and Cochrane Library yielding a total of 165 articles meeting the criteria of the PICOT question. Of the 165 articles critically appraised during the database searches, thirteen publications met the standards for review (Appendix A and Appendix B).

Critical Appraisal and Synthesis of Evidence

This literature review encompasses thirteen articles that were exhaustively evaluated using rapid critical appraisal and are present in the evaluation tables for qualitative and quantitative research (Appendix A and Appendix B). The literature review focuses on advance care planning and ACP discussions. A wide range of levels of evidence (LOE) are present for the thirteen articles reviewed: two systematic review and meta-analysis' of randomized control trials (LOE I), two randomized controlled trials (LOE II), three controlled trials without randomization (LOE III), two pilot studies (LOE IV), and four qualitative studies (LOE VI) (Appendix C). The literature was homogenous in relation to location of intervention, health status of participants, the need for ACP prompting for patient's and providers, pre-visit engagement interventions, the goal of documented ACP conversations, ACP discussions with surrogate decision-makers, and completion of ACP forms along with the form being captured in the EHR (Appendix C). There was heterogeneity in relation to the sample size (thirteen to over 18,000 participants), age of participants (older than 21 years of age to older than 65 years of age), and if the interaction was between the patient and provider or a dyad.

The majority of the studies reviewed occurred in the United States and purpose was advance care plan documentation either with an in-person discussion or captured in the EHR. Many of the studies focused on the outpatient either with a multidisciplinary group or one on one with a provider, and others focused on community and group settings. Several of the studies assessed a pre-visit ACP intervention directed towards the patient. A few of the studies used an electronic intervention to engage patients before a healthcare visit.

Although all of the studies focused on adults, and reported age, race, and health status; this was not reported in one of the systematic reviews and meta-analysis. Many studies did not

report ethnicity which can lead to cultural bias. Only one article had a theory or framework listed; all others were inferred.

Conclusion

There were multiple high-level studies reviewed to evaluate ACP discussions and completion. Interventions that encouraged patient and provider engagement electronically, either by engaging the patient before a visit or as a reminder for the provider during the visit, had the highest number of ACP documented. Community-based and multidisciplinary interventions also showed a high rate of ACP completion. The literature reflects that outpatient and community-based interventions encourage ACP documentation and EOL discussions. Education directed at providers or patients showed a small increase in the number of ACP discussed, completed, and documented.

Theory Application

Theory provides a systematic way to comprehend situations (National Cancer Institute [NCI], 2005). One theory that can be applied to advance care planning completion is the Precaution Adoption Process Model (PAPM) (Appendix D). The PAMP uses seven stages that describe the process of engagement into action. (DiClemente, Crosby, & Kegler, 2002). A person moves forward through these stages in order (they can also move backward). However, once a person completes the first two stages they cannot go back; once a person has an awareness of an issue, they do not become unaware (NCI, 2005).

The PAMP can easily be applied to advance care planning in community-dwelling adults (CDA). This project focused on electronically engaging CDA before an educational advance care planning seminar. The evidence shows that if patients are electronically introduced to the process of advance care planning before the seminar moving from *unaware of the issue* and *unengaged*

by the issue, they may become engaged and they will decide *to act or not act* after the seminar. If the CDA decide *not to act* they are still aware of the advance care planning process. If the CDA is engaged and *decides to act* and they will move into *acting. Acting* can be completed by documenting an ACP and have an ACP discussion with the surrogate decision maker about their EOL wishes. Also, of importance to this project is *maintenance*, which includes continuing the discussion of advance care planning, ensuring EOL wishes are understood and discussed as health status changes.

Evidence-Based Practice Model

An evidence-based practice model can be used to facilitate change based on current evidence. The ACE Star Model of Knowledge Transformation is an evidence-based practice model that can fit well with advance care planning in the community setting (Stevens, 2012). The ACE model is broken into five-star points: *discovery, evidence summary, translation, integration, and evaluation* (Appendix D). The model is cyclic, with the outcome of evidence-based quality improvement of healthcare (Stevens, 2012). Specific to the project the Star Model can be applied in the initial stages and throughout the project. Star points one and two have been ongoing through the literature research and review. Star point three translation is a two-step process where there is a translation of the evidence into practice recommendations and integration into the project, star point four is the integration of evidence into the evidence-based project in the community (Stevens, 2012). Star point five is completed at the end of the project where there is the final synthesis of the project and outcomes are evaluated (Stevens, 2012). This model is cyclic using the synthesized evidence, the non-profit will be able to sustain change with long-term goals of ongoing advance care planning seminars.

Implications for Practice Change

Advance care planning is an important issue that can affect adults at the end of life. This issue was addressed by the IOM in 1997, and although there have been improvements in ACP completion only 30% of people over the age of 65 have a documented ACP (Rao, Anderson, Lin, & Laux, 2014). The evidence states that if people are engaged either in the community, electronically before a visit, or at a provider's office, they are more likely to have a documented advance care plan and an advance care plan discussion (Appendix C). The Arizona Foundation for Women (AFW) in Phoenix, AZ supports vulnerable populations; it stated that there is a need for a community-based advance care planning intervention with the goal of ACP completion.

One way to engage adults in the advance care planning process is to move it from the acute care setting to the community setting. When patients and healthcare providers are engaged before an advance care planning intervention occurs, the evidence shows there is an increase of discussions about EOL wishes and the documentation of ACP (Bose-Brill et al., 2018; Hayek et al., 2014). Engagement for this project included an electronic pre-engagement email, participating in a 45-minute seminar about advance care planning, participants naming a surrogate decision maker (SDM), engaging in discussion with a SDM about EOL wishes, completing an ACP form, and demonstrating intent to discuss EOL wishes with their healthcare provider. Ultimately the goal for ACP completion is to allow the opportunity for autonomy at the EOL.

Methods

This evidence-based practice (EBP) project was deemed exempt from the Arizona State University Institutional Review Board on July 30th, 2019. The non-profit selected two dates in the Fall 2019 when the advance care planning seminar and follow-up seminar occurred. The non-profit supported the recruitment of the EBP project through list-serve email announcements,

social media advertising, and flyers placed in the community at local businesses and churches. Participants RSVP via a link provided by AFW. One week before the first ACP seminar, those who RSVP received a reminder email by AFW with event details including with the informed consent letter, electronic engagement with a link to the *Prepare for Your Care* website, and a link to a survey via Survey Monkey. The survey included demographic questions (age, marital status, and ethnicity) and the four question Advance Care Planning Engagement Survey (ACPES) (Sudore et al., 2017). Those who complete the survey were part of the project; if people chose not to complete the survey, they were still allowed to attend the advance care planning and follow-up seminars but, no survey data was collected.

The first advance care planning seminar reviewed topics specific to advance care planning in Arizona. Topics discussed in the seminar: what is an ACP, who should have an ACP, parts of the Arizona ACP, what is included in the healthcare ACP, what is a surrogate decision maker (SDM), when do you need a SDM, talking with your SDM, what makes an ACP a legal document, who should have copies of the completed ACP and when to update your ACP. The Arizona state advance care planning packet and the *Prepare for Your Care* advance care plan were available to complete or to take home to review. The second seminar occurred three weeks later and was open to questions related to advance care planning. A notary and lawyer were available during both seminars so that the ACP packet could be completed, and legal questions answered at the time of the event. The agency sent a follow-up survey link email two, four, six and eight weeks after the first seminar. To ensure only project participants completed the follow-up survey, the survey used skip logic which ensured only those who completed the pre-survey progressed to the post-survey questionnaire.

Outcomes and Measurement

Assessment of the quality and effectiveness of this project was completed by calculating the total number of completed ACP forms and comparison ACPES survey pre and post-intervention. ACP completion rates were evaluated through an aggregate number of notarized ACP forms after the seminars and self-report on the follow-up survey. Engagement of advance care planning was assessed through a comparison of pre and post-intervention by the four question ACPES (Sudore et al., 2017). The ACPES provided data for statistical analysis to see if the project participants engaged in the process of advance care planning. Responses to the survey are report Behavior Change Stages in a five-point Likert scale (Sudore et al., 2017). A two-tailed p-value of ≤ 0.05 will be used for statistical significance for the pre and post survey. Measurement of short-term outcomes include the engagement of advance care planning behaviors and the completion of the ACP forms. Long term outcomes are patient autonomy at the EOL and family and provider satisfaction with EOL care.

Budget and Funding

This project was unfunded, delivered through in-kind support of the DNP student, ASU facility, and AFW. There no other financial disclosures or conflict of interest to report. Appendix F details the project budget.

Results

Descriptive Data

Twenty-four people RVSP to attend the seminar, seventeen people attended the in-person seminar. Nine consented to the project and completed the pre-seminar survey; ten people completed the post-seminar survey. Demographic data was collected during the pre-seminar survey. Summary statistics were calculated for frequencies, and percentages were calculated for demographic data (Appendix G). All project participants were female (n = 9, 100%). The

majority were divorced (*n* = 4, 44%) and white (*n* = 6, 67%) (see Appendix G, Table 1). The average age was 52.44 (SD = 17.73, Min = 30, Max = 77, Mdn = 58) (see Appendix G, Table 2).

Data Analysis

A two-tailed Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences between ACPES in the pre-seminar survey and post-seminar survey (Appendix G). The two-tailed Mann-Whitney two-sample rank-sum test is an alternative to the independent samples *t*-test but does not share the same assumptions (Conover & Iman, 1981). The four-question ACPES measured readiness for behavior change related to advance care planning (Appendix H). There were ten the post-seminar surveys and nine pre-seminar surveys complete. All participants answered all four questions of the ACPES except one study participant did not answer the third ACPES question in the pre-seminar survey.

Results

One project participant notarized an advance care plan and three non-project participants notarized advance care plans. The result of the two-tailed Mann-Whitney U test was not significant based on an alpha value of 0.05, for all four questions in the ACPES (Appendix I).

Clinical Significance

Although there was not statistical significance for this there was clinical significance. There are now four community member that have either a new or updated notarized advance care plan. There are seventeen people in the community that have been now have information about advance care planning. Although not all of the seventeen people who attended the seminar notarized an advance care plan according to the PAMP are aware of the issue and can decide to act later or not act; they no longer can be unaware of advance care planning.

Sustainability

The board and staff of non-profit that sponsor this project were encouraged by many aspects of the project. They were encouraged by the attendance rate of 70.8% (24 people whom RSVP'd to the seminar and 17 attended the seminar), which was a higher percentage of attendance than some of their previous seminars. They found the project seminar introduced the concept of advance care planning discussions and documentation for all attendees. They also received positive feedback about the seminar from attendees. When the non-profit completes its next advance care planning seminar, the board and staff want it to be over multiple sessions to increase the depth of information reviewed. The non-profit believes sustaining advance care planning engagement and education aligns with their goals of supporting women in the community through research and advocacy.

Discussion

Non-profit community-based organizations have the opportunity to introduce the topic of advance care planning outside of the traditional healthcare setting. Introducing the topic electronically before a community-based intervention can engage people in the process of advance care planning. The evidence asserts that when patients and providers are engaged in advance care planning before a health care visit, there are increased discussions and form completion. The evidence also shows that if people have advance care plan documentation and discussions, they report higher satisfaction with their healthcare. The purpose of this project was to determine if pre-seminar electronic engagement about advance care planning could foster the completion of the documents. The advance care plan completion rate for this project was 23.5%, slightly lower than the national average of 30%. This lower completion rate may be attributed to a small sample size.

For this project, there were some limitations that left areas for improvement. There was an issue with the informed consent being sent from the non-profit. To rectify this issue, IRB approved consent was added to a new survey that the study participants completed. This may account for the discrepancy between the pre-seminar and post-seminar survey numbers. The project outcome was limited by the number of participants, which, in turn, may have limited the statistical significance. The ACPES did not show statistical significance between the pre and post-in-person seminar. However, those who attended may have started the process of engagement when they received the pre-seminar educational materials from the non-profit. These educational materials included a link to a website, when reviewed by the participant may have engaged the participant. The lack of statistical significance in the pre and post-seminar ACEPS could be attributed to the assumption participants already had an interest in the subject of advance care planning; otherwise, they would not have attended the seminar. Of interest in this project was the age of the participants. This age range for this project is lower than previous research reviewed. The range was 30 to 77, with an average age of 52.44. A younger age group from the community can have fewer chronic illnesses and have fewer interactions with healthcare providers than those who are older or those chronic disease. With the younger age of participants, there is the opportunity to increase the number of discussions about advance care planning and the end of life over a period of time before a medical emergency occurs.

This project was unique by taking the advance care planning discussion out of the healthcare arena and was done in the community by a multidisciplinary team that included a healthcare professional, lawyer, and a notary. Future projects should partner with community-based organizations to introduce and continue education on the topic of advance care planning. Ultimately these organizations may be better suited to reach healthy, community residing, and

potentially younger populations to engaging in the process of advance care planning and ensure the individuals EOL wishes are understood and respected by family, surrogate decision-makers and healthcare professionals.

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Appendix A

Table 1

Evaluation Table Qualitative studies

Citation	Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement/ Instrumentation	Data Analysis	Findings Themes	Level/Quality of Evidence; Decision for practice/ application to practice/ Generalization
De Vleminck, et al. (2018) Do non-terminally ill patients want to discuss the end of life with their family physician? An explorative mixed-methods study on patients' preferences and Family Physicians views in Belgium Country: Belgium Funding: Department resources University of Ghett Bias- None reported	Inferred not stated: hermeneutical phenomenology	Mixed Methods (Quantitative Descriptive design through convivence sample and Qualitative- semi-structured interviews). Purpose of the study: 1. To describe to what level patients aged 50 and older who are healthy are contemplating about the EOL and are willing to discuss this with their doctor 2. To investigate whether these patients and doctors indicate the	N-2 n1-286 (Quantitative) n2- patients-5 (Qualitative) n2 providers-5 (Qualitative) 50 years of age and older, Inclusion: able to speak and read Flemish, Exclusion: (Patient) terminal diagnosis, cognitive impairment. Family physicians in	Patients thought about the EOL or dying, wanting to discuss the EOL with their Physician Comparing if providers and patients have the same triggers for discussing ACPs	Instruments used: Quantitative questionnaire Qualitative: Semi structured 1:1 interview	Pearson chi-square tests Percent Interviews transcribed verbatim and analyzed using constant comparative analysis and coding to find themes	CI- 95% p value ($p < 0.05$). Preferences for communication about the end of life: Ever thought about their end of life or death 69.8% Thinking about the end of life makes them anxious 28.9% Wanting to discuss their thoughts on the end of life with their family physician 62.3% Experiencing barriers to	LOE: VI Weakness-small samples size for qualitative results Strengths: Quantitative large sample size (cross-sectional) Utility to the PICOT: From the qualitative study, 79% of patients would like provider to bring up topic of end of life. 65% of patients consider it of added value if their EOL decisions would be documented on

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	same themes as triggers for ACP discussions in a family practice clinic	the two private practices Setting: Family practice two practice groups in Belgium n1 Gender Female: 50.3% Age 50–59 43.0% Educational level Lower secondary 20.2% Higher secondary 53.9% Higher education 22.3% Marital status Married or cohabiting 71.1% Children Yes 86.3% Chronic illness Yes 53.8% Experience of a recent death of someone close Yes 37.8% n2 Qualitative		discuss the end of life with their family physician 17.3% Would appreciate it if their family physician brought up the topic of end of life 75.9% Already made specific decisions regarding their own end of life or death 19.6% To consider it of added value if their EOL decisions would be documented on paper or known by their family physician -65% Multivariate analyses showed that educational level was the only significant factor 1. patients with a higher educational level were more	paper or known by their family physician Conclusion: Although patients and providers have different reasons to discuss EOL. Patients would like providers to bring up EOL, and they would like the decisions documented and their provider to know their choices. Feasibility-application to pt. population: providers need to initiate the EOL discussion and help patients document their EOL wishes because patients have already thought about what they want at the EOL.

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			10 interviews were conducted 5 patients (3 women 2 men) age ranged from 54 -72 years. 5 providers (4 men) age ranged from 37 to 65 years. Participants: 3- chronic disease or cancer two healthy				likely to have previously thought about their EOL and dying 2. to discuss this with their provider compared with patients with a lower educational level Qualitative results 1. care dependency 2. physical and mental deterioration at the EOL 3. dying alone No difference based on sex or educational level Patient and provider have different reasons to discuss ACP	
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice

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Dillon et al. (2017) Provider Perspectives on Advance Care Planning Documentation in the Electronic Health Record: The Experience of Primary Care Providers and Specialists Using Advance Health-Care Directives and Physician Orders for Life-Sustaining Treatment Country: USA (California) Funding: Health Care Systems Research Network Claude D. Pepper Older Americans Independence Centers AGING Initiative, the National Institute on Aging, Palo Alto Medical Foundation, and the Richard and Susan Levy Family Trust Bias- None reported	Inferred not stated: Grounded theory	Study Design: Qualitative through Purposive sampling and structured interviews via email to better understand the variety of providers ACP practice patterns, barriers and facilitators Snowball sampling to identify other health-care team members involved in ACP discussion or documentation Even recruitment of providers with high and low ACP completion Purpose Perspectives on Advance Care Planning Documentation in the Electronic Health Record	n- 13 Providers MD 3 primary care 3 pulmonology 4 oncology, 2 cardiology 1 nurse practitioner Exclusion: None noted Setting: A large, nonprofit, multispecialty group practice in CA Including: primary care pulmonology cardiology oncology	To identify current ACP practices, barriers, facilitators at multi-specialty group practice	Chart review for ACP documentation Interviews were audio recorded, transcribed verbatim, and de-identified Open coding used to identify themes	Percent's for ACP documentation (high vs low) Thematic saturation Themes identified Atlas.ti version 7.5.4 to organize and code data	High and low completers of ACP found the same themes 1. Prefer POLST over ACP 2. Difference in beliefs on who is responsible for ACP documentation 3. Benefit from standardized workflow for EMR documentation 4. Barriers to ACP documentation 5. facilitators/ recommendations for improvement	LOE: VI Weakness-results: One organization studied POLST available in CA not AZ Primary and specialty care. Providers felt ACP was too vague. Strengths: High and low ACP completers had similar practice in relation to ACP's. Lack of time all providers. Providers want to share the responsibility of ACP with a multidisciplinary team. Need ongoing relationship with provider Feasibility to PICOT: Using a multidisciplinary team session may increase ACP completion and decrease work load on providers.

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Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Fried et al. (2016) A dyadic perspective on engagement in Advance care planning Funding: VA, Yale university and the national institute on aging program Bias: None stated	Stated Grounded Theory	Design Qualitative cross-sectional Purpose: to understand participation in ACP as a dyadic process	n-31 Setting-Community Inclusion: part of another study > 55 years primary care at VA Connecticut an appointment in the prior 12 months 39% 60-69 32% female 74% white 26% <= HS education 29% Poor health 52% -spouse of vet 77% had daily contact Exclusion: primary language other than English no surrogate cognitive impairment	To understand the perspective of both pt and surrogates on participation of ACP Barriers and facilitators	Phone Interviews/ constant comparative method until theoretical saturation was reached	Comparative method until there was theoretical saturation was reached of the transcripts	Barriers to ACP Disagreement about engagement of ACP 33% QOL 39% life sustaining treatments 48% appointing surrogate 39% completion of ACP Reasons: -Failure to remember -disagreed communication occurred -inadequate or not enough detail -schedule -not relevant -difficult to think about dying	LOE:VI Weakness-Patients in one health system, small sample size Strengths: Interview of Dyads together Done in the community setting Application to PICOT: Engaging Dyads together and then having the opportunity to complete ACP may increased the discussion about EOL wishes

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			active mental illness recent or current severe illness severely hard of hearing no telephone and/or address				Facilitators of ACP -having different opinions about what they wanted at the EOL -avoiding family conflict -avoiding unwanted health state -Understanding declining health and aging	
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Schubart (2018) Family Caregivers' Characterization of Conversations Following an ACP Event Country: USA Location: Funding: American Cancer society	Inferred not stated: grounded theory	Semi structured interviews Purpose to describe family caregivers' reported experiences with conversations about patients' goals and preferences for end-of-life treatment in the weeks after an	n-285 dyads Tertiary medical center Inclusion Part of larger ACP study determining if an online ACP decision aid was more effective than standard ACP and if alone vs together	IV ACP event DV conversation about ACP	Semi Structured interviews were audio recorded, transcribed verbatim, and de-identified Open coding used to identify themes	percent/ frequency Themes in transcripts	69.7% had a conversation about medical wishes Majority had 2-3 conversations that were 3-5 minutes 74% that had conversations said they helped them understand medical wishes,	LOE VI Weakness: Caregiver perspective not patients, Pt may want to talk to providers about medical prognosis, small sample size Strengths: Majority had conversations about medical

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	ACP event 1. what prompted conversation in the 4 to 6 weeks following an ACP event, 2. number and duration of conversations, 3. content 4. barriers to conversation, 5. caregivers' reported preparedness to make surrogate medical decisions		treatments, provided insight for EOL wishes, awareness of disease progression Discussions occurred: After ACP event 30% (57) did not have discussions of those 47% said they wanted to but did not want to bring up the issue, 45% thought the caregivers thought the pt wanted to have a discussion but still did not occur. 28% did not have discussions because they had a previous EOL discussion. 22% reported EOL	wishes/QOL wishes after ACP event. Application to PICOT: Dyads may discuss QOL/EOL wishes after an ACP workshop

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			discussions were uncomfortable. 21% reported the discussions upset the patient.

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Appendix B

Table 1

Evaluation Table Quantitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Brose-Brill et al. (2018) Validation of a Novel Electronic Health Record Patient Portal Advance Care Planning Delivery System Country: USA Funding: OSU college of medicine Bias: Brose-Brill developed framework, administered intervention, and completed the chart review	Inferred not stated: PAMP	Design: Quantitative Experimental comparative Focused on promoting patient/provider communication surrounding ACP preferences, not on completion of ACPs being scanned into the EHR Purpose: Determine the impact of ACP information given through the EHR pre-visit on ACP documentation in chart	n– 419 IG – 200 CG-219 Edu: Not reported Male: CG: 35% IG: 50% Age: CG: 61 (50-93) IG: 61 (50-91) Chronic diseases: CG: 4 IG: 4 Medications: CG: 7 IG:6 Race: not reported Setting: Outpatient clinic Inclusion: Patients 50 years or older	IV- Reminder in EHR prior to visit DV- Documentation of ACP in chart, portal usage and quality of ACP if one documented in the EHR or chart	Chart review Framework Questionnaire Quality of ACP used the Advance Care Planning Quality of ACP	Fisher exact test P<0.001 Mann-Whitney	Statistical significance was found for IG 78.0% of pt read the message in the portal, 19.5% responded to at least one question in the study framework 49% who responded to Portal message had some type of ACP in the EHR, 51% added an ACP to the chart for the 1st time	Level of Evidence: II Strengths: Pt were engaged prior to visit with ACP discussion questions There was addition to ACP Quality of ACP was higher with IG Weaknesses: Baseline rates of ACP documentation site were different. The CG having higher rates of ACP documentation at baseline. Did not try to engage non-portal users ACP scanned in the chart was the same for IG and CG Conclusion:

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	with an active MyChart (pt portal account and had a preventive health or chronic disease follow-up visit during the study period Exclusion: None noted Attrition: None noted		Quality of ACP- Responders with existing ACP had a mean quality score of 4.94 verses of 4.09 for all documented ACP in the IG Respondents with new ACP documented ACP mean quality score of 3.7. Number of messages Respondents sent a median 11 portal messages/ year The IG had a median 5 messages before and during the study period. Total ACP scanned into the chart	Feasibility/application to pt. population: Engaging patients prior to visit will increase the number of ACP discussions and the quality of ACP documentation

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							The IG and CG had 14% scanned ACPs documented in the EHR	
Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement Instrumentation	Data Analysis (stats used)	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Hayek, et al. (2014) EOL Planning: Improving Documentation of Advance Directives in the Outpatient Clinic Using EMR Funding: Not stated Bias: None stated	Inferred not stated: TTM	Design: Mixed methods Qualitative design Structured interviews -100 random pt charts reviewed issues discussed with providers. Providers noted their perceived challenges in discussing EOL care. Quantitative through quasi-experimental Pre-study Two changes were based on these discussions Test of change 1 Promote patient's engagement in discussing ACP	N-2 n1– 588 n2- 64 IG- 38 CG-26 Setting: Emory University resident run outpatient clinic Demographics Edu: not reported Sex- not reported Age: 55% > 65YOA Inclusion: Any of the following: >65 YOA CHF COPD AIDS Malignancy Cirrhosis	IV- EMR reminder in patient problem list DV- Documentation ACP in patient chart	Retrospective Chart review .	Nominal Sums and percentage Using the *x*2 test	Statistical significance P value <0.001 Pre-study No patients had ACP Documented on chart Providers interviews themes were not documented in the study Test of change 1 1.3% had ACP documented Test of change 2 76% IG had ACP documented 11.5% CG had ACP documented	LOE: II Strengths: Promoted engagement prior to visit. Encouraged decision maker to attend visit. Provided form and link to guides. Letter sent 2 weeks before visit. Weaknesses: Stats for test of change 1 was 1.3% based on patients screened which was considerably higher than the second intervention Small sample size Short duration of study Documentation of ACP does not mean a discussion took place Conclusion: EOL preferences are rarely

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		1. Education at check in 2. email providers education on ACP 3.Email providers as a reminder of importance of ACP Test of Change 2 EMR reminder ACP counseling added to the patient reminder list	ESRD Exclusion: None noted Attrition: None noted					documented in the EMR There was limited impact on ACP documentation when there was a onetime provider education Having a specific section for documenting ACP that was easily available for providers increased documentation EMR reminders increased completion of ACP's Feasibility/application to pt. population: CDA maybe engaged prior to intervention can increase ACP completion
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Houben et al. (2014) Efficacy of Advance Care Planning: A Systematic Review and Meta-Analysis Funding:	Theory inferred TTM	Meta-analysis and systemic review Purpose: Systematic review purpose: to study the efficacy	N-56 IC: original articles, RCT, English, EC age <21 YOA	IV1- Completion ACP IV2 communication about ACP	Median PEDro scale for quality assessment Pedro scale 31 trials low	X2 in SPSS 21.0 for relationship between year of	Intervention compared to usual care had increased likelihood	LOE I Strength: multiple studies reviewed, large sample size, high quality articles reviewed, large

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Grant from lung foundation of the Netherlands Bias: None stated Country Netherlands		of ACP interventions in different adult populations	Related to mental health not physical health Setting: Inpatient, outpatient or both	DV1 ACP completion DV2 EOL discussions DV 3 Concordance of EOL care with EOL wishes DV4 Knowledge of ACP DV5 EOL care preferences	quality (failure to blind	interventi on and publicatio n year Meta-analysis for random effects model in RevMan 5 OR Statistical significan ce at p<.05	for the completion of advance directives (OR 3.26; 95% CI 2.00-5.32; P < .00001) Increased occurrence discussions about EOL preferences between patients and provider with intervention compared to CG (OR 2.82; 95% CI 2.09-3.79; P < .00001) EOL care preferences Mixed results Quality of communicat ion -positive results	patient population many chronic health conditions included Weakness: age not reported, in and outpatient studies included. Demographics not listed, focused on providers and patients, did not list countries of origin Utility for PICOT: Patient's will complete an ACP if engaged by provider or pre-visit education.
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice

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Luu et al. (2017) Increasing Advance Care Planning Completion at an Academic Internal Medicine Outpatient Clinic Country: USA Funding: NIH grant Bias: none stated	Inferred not stated: PAMP	Study Design: Quasi-experimental and Descriptive design through surveys Two phase study Purpose of the study: rate of completion of the three types of ACP: 1. advance directives 2. MOLST, 3. power of attorney. And understand providers reasons for not completing forms by survey after the visit Design: 1. Pt reviewed a letter 2 weeks before appointment with an ACP and that the ACP would be discussed in the visit. Pt were encouraged to discuss their plans with their family and decision maker and to	n1- 69 n2- 384 Demographics: Not stated Inclusion: 65 YOA or older did not have an ACP in EHR were scheduled for a new patient or annual visit with their primary care provider. Setting: Outpatient clinic	IV – Pre-visit exposure ACP through a letter, Video during visit DV-ACP documentation of form and discussion	Instruments used: Program used not noted Post visit survey	Nominal Frequency and percent	n1- 72% participated in the study 49% completed some type of ACP 51% had a documented Discussion about ACP 39% did not complete or discuss ACP with provider Reasons given: Not enough time (55%) Already had one (22%) Not appropriate (7%) Clinician forgot (7%) 9% of the time forms were lost after completion n2- 56% participated in the study	LOE: III Weakness: preintervention ACP completion not completed Unable to conform if patient received letter No comparison groups. High percentage of patients have discussion but not document in file. Demographics not reviews One of the forms captured for ACP was POLST which is not regularly used in ABP clinic Strengths: Completed in an outpatient setting Informed pt prior to visit ACP were being discussed Providers were interviewed after visit if ACP not completed Conclusion: Feasibility/application to pt. population PICOT:

Key ACP: advance care plan, **AIDS**-acquired immune deficiency syndrome, **CHF** Congestive heart failure, **CI**- confidence intervals, **COPD**- Chronic obstructive pulmonary disease, **DMII**- type II diabetes, **DV**-dependent variable, **Ecomm**- E-communication, **EOL**-end of life, **ESRD**- end stage renal disease, **GMV**- group medical visit, **Hgb A1C**- Hemoglobin A1c, **IV**- independent variable, **LOE**-level of evidence, **N**-number of studies; **n**- number of participants, **pt**-patient, **RN**- Registered nurse**, TTM**- Transtheoretical Model, **YOA –** years of age

		bring this person to their appointment. 2. At visit pt were watched and informational video on ACP 3. providers documented discussion of ACP in HER 4. Office staff scanned ACP into the EHR					67% completed some type of ACP 53% had a documented discussion about ACP 39% did not complete or discuss ACP with provider 26% of the forms were lost after completion Reasons given: Not enough time (81%)	Pre-visit intervention showed a high rate of completion of ACP Engagement of patient, office staff, and providers
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Lum et al. (2016) Advance Care Planning Meets Group Medical Visits: The Feasibility of Promoting Conversations Country: USA Funding: Colorado health foundation, University of	Inferred not stated: PAPM	Pilot non-randomized study Purpose of the study: Have GMV to engage patients in discussions about 4 components of ACP: choose	n- 32 27 completed Demographics Well patients with provider at site Mean age 79 59% female 72% white 50% married	IV-Group Medical visit that engaged patients in ACP DV ACP conversations and pt experience of GMV	Re-AIM framework Through GMV transcripts, patient demographics, and post-session evaluations searching for themes, interpretation	Percent/ frequency Using Research Electronic Data Capture and themes	Engaged in ACP discussion Pre-intervention 19% Post-intervention 41% (p=.02)	LOE IV Weakness: Group sizes were smaller than anticipated. Multiple sessions to get to 27 participants completing the study

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Colorado Hospital/University Physicians Incorporated Primary Care Strategic Initiative Fund, National Palliative Care Research Center Colorado Clinical & Translational Sciences Institute Development and Informatics Service Center grant support Bias: none stated	surrogate decision maker, decide of EOL preferences, discuss preferences and document the ACP in the EHR	31% attended with partner 84% retention rate Exclusion: cognitive impairment, hard of hearing Setting Outpatient GMV at a primary care practice site	and implications using triangulation process.	Agree or strongly agree- >80% though the GMV was better the traditional visit to discuss ACP >80% felt comfortable discussing ACP's in the GMV >60% felt talking with others about ACP was helpful in the GMV Discussion themes sharing personal values and trials related to ACP and discussing a broad range of patient raised topics related to ACP.	Did not assess if ACP were completed Strengths: Group environment was better than a traditional office visits to discuss ACP. Relation to PICOT: Group visits encourage discussion and completion of ACP

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Citation	Theory/ Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Results	Level/Quality of Evidence; Decision for practice/ application to practice
Obel et al. (2014) Outpatient Advance Care Planning for Patients with Metastatic Cancer: A Pilot Quality Improvement Initiative Funding: Not stated Bias: None stated	Inferred not stated: PAMP	Feasibility study Prior to intervention Experimental design Intervention- new workflow during 3 visits for 2 oncologists Visit 1 Oncology RN asked 4 questions about ACP to patient, provider entered note on ACP and code status orders, patients were asked if they wanted to receive more info on ACP. Patient was given booklet on ACP. Visit 2 included chemo and ACP education RN reviewed completed ACP booklet, ACP completed	N-2 n1–79 n2-101 IG- 49 CG-52 Setting: outpatient oncology clinic in Illinois Demographics Edu: not reported Sex- not reported Age: not reported Inclusion: newly diagnosed stage IV Exclusion: None noted Attrition: None noted	IV- Workflow changes over 3 visits DV- ACP and code status orders documented in the EMR	Retrospective Chart review ACP guide book	Frequency and percent	Feasibility study 1/79 ACP Inpatient orders higher IG:33 /48 (69%) ACP 22/48 (46%) Code status orders documented in EMR 21 of 33 ACP in EMR by 7 days Control group 1/52 ACP 1/52 Code status orders	LOE: II Strengths: Included RN as part of process to decrease load on provider Change in work flow over 3 visits created a higher rate ACP documentation Pt revisited previously completed ACP with change in health status Had a control group Weaknesses: Completed on patients with newly diagnosed stage IV cancer not the same population at site Conclusion: using multidisciplinary team increased completion Feasibility/application to pt. population: Introduction of ACP prior to completing forms by non-medical staff can

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		Visit 3 provider reviews ACP discussed ACP and enters code status orders in chart. RN enters power of attorney and scans ACP into chart Comparison to 2 oncologists without intervention in the same practice over the same time period						increase completion and documentation rates.
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Rabow et al. (2019) Advance Care Planning in Community: An Evaluation of a Pilot 2-Session, Nurse-Led Workshop Funding: UCSF Breast oncology program Bias: None stated	Inferred not stated: PAMP	Mixed methods ACP readiness survey Purpose: Facilitate ACP discussion between patients and surrogates and ACP completion	Community Median age 58 Cancer patients	IV -ACP workshop DV- ACP readiness and completion	ACP readiness Survey Percent ACP completion Semi structured interviews	Likert scale for survey Frequency and percent Themes for interviews	Readiness increase 3.64 to 4.26 (p=0.01) 65.4% had a new ACP completed and notarized into the EHR 3 surrogates completed an ACP Themes	LOE IV Weakness: small sample size Cancer patients Strengths: dyads attended together Positive remarks of workshop Application to PICOT: increased readiness and completion of ACP. Facilitated discussions that will hopefully continue over time

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							Increased awareness of being a surrogate awareness of naming a surrogate workshop helped increase written education materials Group setting help start conversation	
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis (stats used)	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Tieu et al. (2017) Utilization of Patient Electronic messaging to promote Advance Care Planning in the Primary Care Setting Country: USA Funding: None Bias: none	Inferred not stated: PAMP	Study Design: Experimental through Random controlled intervention Method Patients received EMR notification explaining the ACP process and a link to ACP workbook	n1- 2526 IG- 2294 CG-200 Attrition 32 Demographics Inclusion: 65 or older, no ACP documented in EHR and had access to EHR.	IV -Electronic messaging to complete ACP DV- ACP completion	Instruments used: Chart audit for demographic	Percent using the $x2$ Logistical regression analysis 2-tailed t-test P values <or equal to 0.05 Means and	Age: mean CG 71.7 IG 71.9 In % Sex Female CG 52% IG 47% Race Ethnicity: not noted 75% opened message	LOE: II Weakness: One clinical health system Must have access to patient portal Strengths: ACP completion was statist ally significant Should still discuss goals of care with provider

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		Reminder 8-weeks after 1st notification Outcomes collected at 12 weeks after first notification Purpose: 1. Completion and return of an ACP within 3 months after personalized message prompt 2. Clinical utility of the completed ACP documented 1 presence or absence of a health-care proxy 2. Designation of code status 3, personal description of health-care wishes and values.	Exclusion: Did not meet inclusion criteria Setting: Primary care clinic Mayo Clinic			Standard deviation	ACP completed CG 5.5% IG 2% Expression of health value p .022	Feasibility/application to pt. population: Sending a portal message is available for many of the patients at the EBP site Conclusion: Engaging patients with Ecomm before workshop may increase ACP completion and discussions. Use for PICOT: electronically engaging patients before an intervention is a way to encourage completion of ACP
Citation	Theory/ Conceptual Framework	Design/ Method/purpose	Sample/ Setting	Major Variables & Definitions	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/Quality of Evidence; Decision for practice/ application to practice
Weathers et al. (2016) Advance care planning: A systematic review of randomised controlled	Inferred not stated: PAPM	Design meta-analysis	N-9 n-3646 Setting:	IV ACP completion DV1 Rates of completion	Oxford quality scale	Percent Frequency	Interventions increased ACP documented	LOE I Strengths

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trials conducted with older adults Country: Funding: The Centre for Gerontology and Rehabilitation None Bias: none	Purpose: examine the effects of ACP on symptom management, quality of care and health care utilization	7- community dwellers, Inclusion 9-RCT In English ACP intervention >65 YOA Any setting	DV2 Concordance of EOL wishes and treatment		Increase in patient knowledge, Increase in concordance of care EOL and documented wishes. Decrease hospitalizations, decrease in healthcare utilization. Improved understanding between surrogates and patients, decrease levels of stress on survivors,	7 studies on community dwellers, informational sessions increased ACP completion, Weakness Variable LOE strength based on the oxford quality scale. Did not provide information on quality of EOL care. Conclusions: ACP have positive outcome on patients and survivors, application to PICOT: community setting can be used to increase ACP completion

Key ACP: advance care plan, **AIDS**-acquired immune deficiency syndrome, **CHF** Congestive heart failure, **CI**- confidence intervals, **COPD**- Chronic obstructive pulmonary disease, **DMII**- type II diabetes, **DV**-dependent variable, **Ecomm**- E-communication, **EOL**-end of life, **ESRD**- end stage renal disease, **GMV**- group medical visit, **Hgb A1C**- Hemoglobin A1c, **IV**- independent variable, **LOE**-level of evidence, **N**-number of studies; **n**- number of participants, **pt**-patient, **RN**- Registered nurse**, TTM-** Transtheoretical Model, **YOA –** years of age

Appendix C

Table 1

Synthesis Table

Author	De Vleminck	Dillon	Fried	Schubart	Brose-Brill	Hayek	Houben	Lum	Luu	Obel	Rabow	Tieu	Weathers
Year	2018	2017	2019	2018	2018	2017	2014	2016	2017	2014	2019	2017	2016
Framework	Inferred PH	Inferred Grounded	State Grounded	Inferred Grounded	Inferred PAMP	Inferred TTM	Inferred TTM	Inferred PAPM	Inferred PAPM	Inferred PAPM	Inferred PAPM	Inferred PAPM	Inferred PAPM
LOE/ Design	VI/ MM	VI/ Qual	VI/ Qual	VI/ Qual	III/ Quan	III/ MM	I/SR and MA of RCT	IV/ MM	III/ Quan	II/ Quan	IV/ MM	II/ Quan	I/ SR of RCT
Setting	PC	Specialty Practice	Comm	Comm	OP	OP	Multiple	OP GMV	OP	OP oncology	Comm	PC	Multiple
Demographics													
Age	(50-59) 43%	37-72	60-69 39%	56.7	61 (mean)	55% > 65	>21	79 (mean)	> 60 YOA	NR	52	> 65 YOA	>65 YOA
Sample size	296	23	13	188	419	588, 64	18899	32	480	179	35	2526	3646
Health Status-Chronic illness	53.8%	100%	100%	100%	Required	NR	9 studies unknowns	NR	NR	Required	cancer	NR	NR
Independent Variable													
EHR reminder for ACP					X	X			X			X	
Pre-visit education					X	X	X	X	X	X		X	
Education about ACP			X		X	X		X	X		X	X	X
ACP using multidiscipline approach								X		X			X
Initiation of conversation by provider	X	X					X					X	
ACP event			X	X				X			X		
Dependent Variable													
Documented ACP		X	X		X	X	X	X	X	X	X	X	

Comm- Community**, Comp-** Completion, **Edu-** Education, **EOL- End of life, GMV-** group medical visit, **MA-** meta-analysis, **MM-** Mixed methods**, OP-** outpatient, **PAMP-** Precaution adaption process model, **PC**- Primary care, **PH**- Phenomenological hermeneutics **Qual-** Qualitative, **Quan-** quantitative **RCT**- Randomized controlled trials, **SR**- systematic review

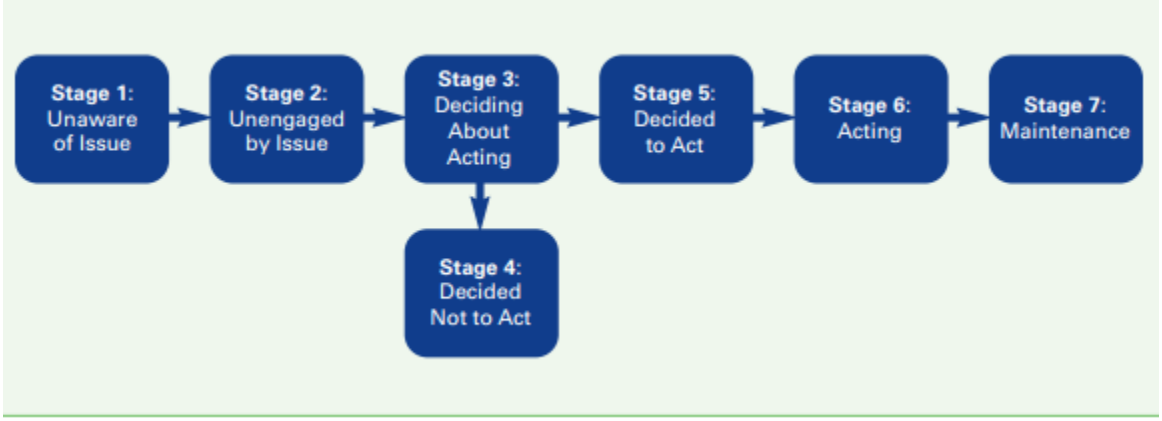
Quality of ACP					X	X							X
ACP Discussion	X		X	X			X	X	X				X
Quality of EOL care							X	X					X
Findings/ Themes													
ACP discussions with surrogate			↑	↑				↑			↑		↑
Pre-visit Engagement ACP Discussions				↑	↑	↑		↑	↑	↑	↑	↑	
ACP documentation			↑								↑		↑

Comm- Community**, Comp-** Completion, **Edu-** Education, **EOL- End of life, GMV-** group medical visit, **MM-** Mixed methods**, OP-** outpatient, **PAMP-** Precaution adaption process model, **PC**- Primary care, **PH**- Phenomenological hermeneutics **Qual-** Qualitative, **Quan-** quantitative **RCT**- Randomized controlled trials, **SR**-systematic review

Appendix D

Figure 1

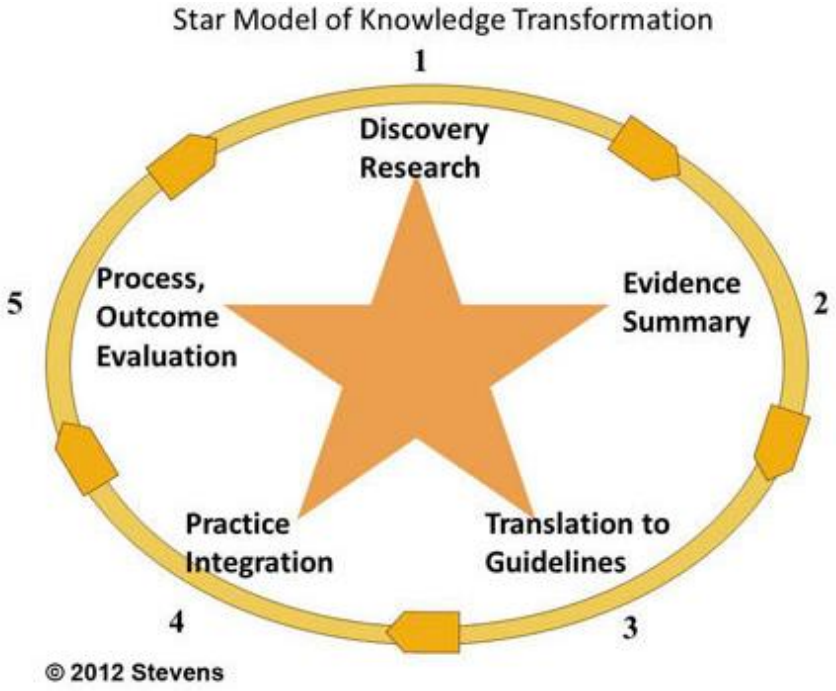
Precaution Adoption Process Model



Appendix E

Figure 1

ACE Star Model of the Cycle of Transformation



Appendix F

Figure 1

Project Budget Plan

Expense Item	Expense	Cash Expense	In-Kind Support
Personnel			
Project Director (DNP student) $45/hr. 5 hours week for 10 months (project plan/IRB submission/implementation/ data analysis) June 2019-April 2020	$9,000		$9,000 (100%)
Lawyer 2 events 4 hours total	$500		$500 (100%)
Notary at 2 events $10/ACP *20	$200		$200 (100%)
Advertising Cost			
Flyers ($0.89*100 color copies)	$8.90	$8.90	0%
Electronic invite with a flyer with engagement materials	$500		$500 (100%)
Research Collection			
Survey Monkey 1 year	$276	$276	0%
Event day cost			
Facility 2 hours for 2 events (rental of space, air conditioning, this cost includes time for set-up, the event, and clean up)	$500		$500 (100%)
Advance care plans	$100		$100 (100%)
Refreshments (water, soda, and light snack for both events)	$200		200 (100%)
DNP student facilitator (1 students 2 hours each $35/hr.)	$70		$70 (100%)
Total Expenses	$11,354.90	$284.90	$11,070

Appendix G

Table 1

Frequency Table for Nominal Variables

Variable	
Gender	
Female	9 (100%)
Missing	0 (0%)
Marital Status	
Divorced	4 (44%)
Married	3 (33%)
Single	1 (11%)
Widowed	1 (11%)
Missing	0 (0%)
Ethnicity	
Asian	1 (11%)
White	6 (67%)
White/Hispanic	2 (22%)
Missing	0 (0%)

Note. Due to rounding errors, column wise percentages may not equal 100%.

Table 2

Summary Statistics Table for Interval and Ratio Variables

Variable	*M*	*SD*	*n*	Min	Max	*Mdn*
Age	52.44	17.73	9	30.00	77.00	58.00

Note. '-' denotes the sample size is too small to calculate statistic.

Appendix H

Four-question Advance Care Planning Engagement Survey

5. How ready are you to **Sign Official Papers Naming** a person or a group of people to make medical decisions for you?

- ○ I have never thought about it
- ○ I have thought about it, but I am not ready to do it
- ○ I am thinking about doing it in the next six months
- ○ I am definitely planning to do it in the next 30 days
- ○ I have already done it
- ○ If you answered I have already done it, when did you do it?

6. How ready are you to talk to your **Decision Maker** about the kind of medical care you would want if you were very sick and near the end of life?

- ○ I have never thought about it
- ○ I have thought about it, but I am not ready to do it
- ○ I am thinking about doing it in the next six months
- ○ I am definitely planning to do it in the next 30 days
- ○ I have already done it
- ○ If you answered I have already done it, when did you do it?

7. How ready are you to talk to your **Healthcare Provider** about the kind of medical care you would want if you were very sick or near the end of life?

- ○ I have never thought about it
- ○ I have thought about it, but I am not ready to do it
- ○ I am thinking about doing it in the next six months
- ○ I am definitely planning to do it in the next 30 days
- ○ I have already done it
- ○ If you answered I have already done it, when did you do it?

8. How ready are you to **Sign Official Papers Putting Your Wishes in Writing** about the kind of medical care you would want if you were very sick or near the end of life?

- ○ I have never thought about it
- ○ I have thought about it, but I am not ready to do it
- ○ I am thinking about doing it in the next six months
- ○ I am definitely planning to do it in the next 30 days
- ○ I have already done it
- ○ If you answered I have already done it, when did you do it?

Appendix I

Table I1

Two-Tailed Mann-Whitney Test for readiness to sign official naming person a by pretest and posttest

	Mean Rank				
Variable	Posttest	Pretest	*U*	*z*	*p*
Readiness to sign official papers	10.60	9.33	51.00	-0.52	.604

Table I2

Two-Tailed Mann-Whitney Test for readiness to talk to your decision maker about the kind of medical care you wish to receive if you were very sick or near the end of life by pretest and posttest

	Mean Rank				
Variable	Posttest	Pretest	*U*	*z*	*p*
Readiness to talk to decision maker	11.40	8.44	59.00	-1.19	.234

Table I3

Two-Tailed Mann-Whitney Test for readiness to talk to your healthcare provider about the type of medical care if you would want if you were very sick and near the end of life by pretest and posttest

	Mean Rank				
Variable	Posttest	Pretest	*U*	*z*	*p*
Readiness to talk to healthcare provider	9.90	9.00	44.00	-0.36	.716

Table I4

Two-Tailed Mann-Whitney Test for readiness to sign official papers putting your wishes in writing about the kind of medical care you would want if you were very sick or near the end of life by pretest and posttest

	Mean Rank				
Variable	Posttest	Pretest	*U*	*z*	*p*
Readiness to sign official papers	10.15	9.83	46.50	-0.13	.899